10.0 Current Medicare Payment for Nursing Care[1]

10.1 Background

In understanding the potential cost implications of a minimum nurse staffing ratio for nursing homes, it is important to understand the amount of nursing care that is currently paid for by the Medicare and Medicaid programs. One method of estimating the costs of a staffing requirement is to measure the costs of paying facilities to staff at the higher required level relative to what is currently being paid.

Depending on how a minimum requirement is implemented and funded, however, the costs to the government might not be the same as the costs to facilities. We found that the Medicare PPS payment related to nursing care was considerably higher than the costs to facilities of staffing at the minimum levels identified in the Phase I study. As a result, the costs to Medicare associated with the requirement might be less than the cost to facilities, since payment levels appear adequate to allow facilities to staff at or above the minimum level. Facilities are not required to staff at the levels embedded in the PPS rates, but it is important that any increased funding related to a staffing requirement be tied to facility staffing levels. This analysis did not evaluate the adequacy of Medicaid payments for staffing at the minimum levels from Phase I.

The primary purpose of this analysis was to estimate current Medicare payments related to nursing care under the Prospective Payment System (PPS) for Medicare skilled nursing facilities that began in 1998. The PPS rate is composed of several components, allowing one to determine how much of the payment for each case mix group is related to nurse compensation. The nursing component of the rate is intended to cover the costs of both nursing services and non-therapy ancillary costs (i.e., prescription drugs, respiratory therapy, equipment and supplies). About 57 percent of the nursing component is related to nursing and social services salary costs. The remaining 43 percent of the nursing component is related to non-therapy ancillary costs (i.e., prescription drugs, respiratory therapy, equipment and supplies).

The prospective payment is case mix adjusted based on the Resource Utilization Group version III (RUG-III) resident classification system, which was designed to measure the intensity of care and services required for different types of SNF residents. We measured the total number of Medicare covered days by RUG-III group and combined this with information on the part of the PPS rate related to nursing care to measure total and per resident day expenditures for nursing care under PPS.

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[1] The author of this chapter is Alan White of Abt Associates. Other individuals who made valuable comments and suggestions on the analyses include Marvin Feuerberg, CMS Project Officer, Barbara Manard of the Manard Group, and Donna Hurd of Abt Associates. Barbara Bell prepared the analytic files used for this analysis.

In addition, we compared nursing costs under the PPS rate to determine an estimate of expenditures under a simplified rate setting methodology for which the nursing rate was based on minutes of nursing care recorded in the CMS Staff Time Measurement Study (STM) data and the appropriate compensation level. While the STM data was used in the design of the RUG-III system, actual PPS rates were designed using a national data source (Medicare Provider Analysis and Review (MEDPAR)). MEDPAR does not contain the data elements necessary to classify residents exactly as they are in RUG-III and also does not measure directly the amount of nursing time associated with different types of residents. It was used because it was a national file that could be used to develop standardized payment rates.

10.2 Data Sources

Data from several sources were used in the study:

Medicare claims data: We analyzed all Medicare SNF claims for 1999. The number of covered days by RUG-III group can be identified based on the Revenue Common Procedure Coding System Code (HCPCS), which identifies resident RUG-III group, and the Revenue Center Unit Count, which reflects the number of covered days under each RUG-III group. A facility-level file was created that reported the number of Medicare covered days for each RUG-III group. A facility-level file was created that reported the number of Medicare covered days for each RUG-III group. It was necessary to create a facility level file because the RUG-III payment rates depend in part on a wage adjustment factor that varies based on a facility's location.

CMS Staff Time Measurement data (1995 and 1997). These data measure the amount of time required to care for nursing home residents. Over a period of 48 hours, all unit nursing staff recorded direct resident care time. Staff time measurement data are separated into resident-specific and non-resident specific time. We used information on the number of resident and non-resident specific minutes by RUG-III group for RNs, LPNs, and nurse aides. Data on the number of resident and non-resident specific minutes by RUG-III group were acquired from CMS (http://www.hcfa.gov/stats/stmds.htm).

Information on wage rates for nurses. Wage rates for nursing home staff were estimated using data either from several sources, including the Bureau of Labor Statistics, the American Health Care Association's Nursing Facility Handbook, and 1999 Medicaid Cost Report data from California, Massachusetts, Ohio, Texas, and Washington. Fringe benefit costs were estimated based on figures from the Bureau of Labor Statistics.

10.3 Methods

Calculation of CMS expenditures for Medicare covered nursing home stays under the RUG-III classification system involved several steps. The case mix adjusted payment rate is

composed of several components, and it is possible to determine how much of the payment for each RUG-III group is related to nurse compensation. This was combined with information on facility location and the number of resident days by RUG-III group, allowing calculation of CMS expenditures for nursing care, using the steps described below.

STEP 1: Determine portion of PPS payment rate related to nursing care. The nursing component of the PPS rate is intended to cover the costs of both nursing and social services and non-therapy ancillary costs (i.e., prescription drugs, respiratory therapy, equipment and supplies). For facilities in urban areas, 56.6 percent of the Federal rate in urban areas is related to nursing and social services salary costs. For facilities in rural counties, 57.3 percent of the nursing component is related to nursing and social services salary costs. (See the May 12, 1998 Federal Register for case mix adjusted payment rates by RUG-III group.) For purposes of this analysis, we did not consider the transitional facility-specific portion of the PPS rate, focusing only on the Federal rate.

The RUG-III payment rate is divided into four components (Table 10.1):

- *Nursing component*. The nursing component of the rate is intended to cover the costs of both nursing and social services and non-therapy ancillary costs (i.e., prescription drugs, respiratory therapy, equipment and supplies). Each RUG-III group is assigned a nursing index score that is based on the amount of staff time (weighted by salary levels). The nursing weight includes both resident specific time spent daily on behalf of each patient by RNs, LPNs, and nurse aides and other non-resident specific time spent on other necessary functions such as staff education, administrative duties, and other tasks.

- *Therapy case mix component*. The therapy case mix component is related to the amount of rehabilitation therapy time associated with caring for residents in each case mix group. Occupational, physical, and speech therapy costs are grouped in the component related to the therapy index.

- *Therapy non-case mix component.* The therapy non-case mix component is to cover the low level of therapy services associated with residents who did not qualify for one of the RUG-III rehabilitation groups. These therapy services include evaluations for rehabilitation in one or more of the therapy disciplines.

- *Non-case mix component.* All other costs are grouped into the non-case mix related component. Included in this component are costs related to room and board, including capital costs, maintenance, food, and laundry.

The nursing component of the rate is intended to cover the costs of both nursing and social services and non-therapy ancillary costs (i.e., prescription drugs, respiratory therapy, equipment and supplies). For facilities in urban areas, 56.6 percent of the Federal rate

associated with urban areas is related to nursing and social services salary costs. The remaining 43.4 percent is related to non-therapy ancillary costs (including Part B non-therapy ancillary services). For facilities in rural counties, 57.3 percent of the nursing component is related to nursing and social services salary costs, and 42.7 percent is related to non-therapy ancillary costs (Federal Register, November 27, 1998 pp. 65561-65562).

The Federal Register does not specify what proportion of the nursing index is related to salary costs for social services workers as opposed to nurses. According to the 1995 and 1997 Staff Time Measurement (STM) data, which were used in the design of the RUG-III system, there were an average of only two social worker minutes per resident day. This was small compared to the average 138 nurse aides, 69 RN, and 42 LPN minutes per resident day (including both resident and non-resident specific time) observed in the STM data.

There is concern that the STM may not include all types of social services workers, since it includes no categories other than social workers and does not include non-resident specific time for social workers. As a result, we used staffing figures from CMS's Online Survey Certification and Reporting System (OSCAR). OSCAR includes a measure of social workers and "other social services workers" (both measures include full time, part time, and contract staff). In 1998, according to OSCAR, there was an average of about 0.12 social services hours (0.08 social worker hours and 0.04 other social service hours). Staff time related costs for each RUG-III costs were calculated as 56.6 percent of the total nursing component for urban facilities and 57.3 percent for rural facilities. Nursing costs were estimated as 95.764 percent of the component related to staff time costs. The remaining 4.236 percent was related to costs for social services staff.[2]

The figures in the nursing cost column of Table 10.2 represent CMS's per diem expenditures for nursing care (i.e., wage and benefit costs for RNs, LPNs, and nurse aides) for each RUG-III group. Facilities are not required to staff in accordance with these rates, as the PPS payment is intended to cover virtually all costs associated with a stay. The figures in Table 10.2 do, however, represent CMS's payment rate for nursing care under the RUG-III system. The primary source of payment rate information for this analysis was the May 12, 1998 Federal Register. Under the 1999 Balanced Budget Refinement Act (BBRA), however, payment for 15 RUG-III groups (all of the extensive services, special care, and clinically complex groups and 3 rehabilitation groups) were increased by 20 percent effective April 1, 2000. The increase was intended to be temporary, but it was extended through October 2001 as CMS finalizes a refined RUG system. For some analyses, we used the higher payment rates mandated by the BBRA.

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[2] This percentage was calculated using staffing figures from OSCAR and wage figures from the Bureau of Labor Statistics. Based on OSCAR, average hours per resident day were 0.52 for RNs, 0.72 for LPNs, 2.00 for nurse aides, and 0.11 for Directors of Nursing. The associated cost per hour for these staff, including estimated fringe benefit costs, were $21.63 for RNs, $14.54 for LPNs, $9.10 for nurse aides, and $16.26 for social workers. Given these figures, $1.87 of estimated per diem staff time costs were related to social services, and $42.32 were related to nurses.

Under the three-year phase-in transition period for the PPS, payment for most facilities is based on a weighted average of the facility specific per diem and the Federal percentage of the adjusted Federal *per diem* rate.[3] The facility specific portion is based on allowable costs from the cost reporting period beginning in fiscal year 1995 (adjusted for inflation), using the following payment blend:

In the first cost reporting period after July 1, 1998, the facility-specific percentage is 75 percent and the Federal percentage is 25 percent.

- In the second cost reporting period after July 1, 1998, the facility-specific percentage is 50 percent and the Federal percentage is 50 percent.

- In the third cost reporting period after July 1, 1998, the facility-specific percentage is 25 percent and the Federal percentage is 75 percent.

For this analysis, we focused only on payment rates under the RUG-III system and ignored the facility-specific portion of the rate. There were several reasons for this decision. The primary purpose of this analysis was to understand the potential cost implications to Medicare of a minimum staffing requirement for nursing homes. Such a requirement will likely not be implemented until some time after 2001, at which time the transition to the PPS will be complete and the facility specific portion of payment rates will be irrelevant. In addition, the Balanced Budget Refinement Act gave facilities the option to have their payment based entirely on the Federal rate, bypassing the transition to PPS.

[3] This provision allows for SNFs to elect to bypass the transition to the PPS and instead to be paid at the full federal rate beginning with their next cost reporting period.

Table 10.1
Casemix Adjusted Payment Rates Under the RUG-III Classification System by Component: Urban and Rural Nursing Facilities

	Index values		URBAN					RURAL				
RUG-III code	Nursing Index	Therapy Index	Nursing Component	Therapy Component	Therapy-Non-case mix	Non-case mix	Tot Fed Rate	Nursing Component	Therapy Component	Therapy-Non- case mix	Non-case mix	Tot Fed Rate
RUC	1.30	2.25	$142.32	$186.01		$55.88	$384.21	$136.34	214.90		$56.95	$408.19
RUB	0.95	2.25	$104.00	$186.01		$55.88	$345.90	$99.64	214.90		$56.95	$371.49
RUA	0.78	2.25	$85.39	$186.01		$55.88	$327.28	$81.81	214.90		$56.95	$353.66
RVC	1.13	1.41	$123.71	$116.56		$55.88	$296.15	$118.51	134.67		$56.95	$310.13
RVB	1.04	1.41	$113.86	$116.56		$55.88	$286.30	$109.07	134.67		$56.95	$300.70
RVA	0.81	1.41	$88.68	$116.56		$55.88	$261.12	$84.95	134.67		$56.95	$276.57
RHC	1.26	0.94	$137.94	$77.71		$55.88	$271.53	$132.15	89.78		$56.95	$278.88
RHB	1.06	0.94	$116.05	$77.71		$55.88	$249.64	$111.17	89.78		$56.95	$257.90
RHA	0.87	0.94	$95.25	$77.71		$55.88	$228.84	$91.24	89.78		$56.95	$237.98
RMC	1.35	0.77	$147.80	$63.66		$55.88	$267.34	$141.59	73.54		$56.95	$272.08
RMB	1.09	0.77	$119.33	$63.66		$55.88	$238.87	$114.32	73.54		$56.95	$244.81
RMA	0.96	0.77	$105.10	$63.66		$55.88	$224.64	$100.68	73.54		$56.95	$231.17
RLB	1.11	0.43	$121.52	$35.55		$55.88	$212.95	$116.42	41.07		$56.95	$214.44
RLA	0.80	0.43	$87.58	$35.55		$55.88	$179.01	$83.90	41.07		$56.95	$181.92
SE3	1.70		$186.11		$10.91	$55.88	$252.91	$178.29		$11.66	$56.95	$246.91
SE2	1.39		$152.17		$10.91	$55.88	$218.97	$145.78		$11.66	$56.95	$214.39
SE1	1.17		$128.09		$10.91	$55.88	$194.88	$122.71		$11.66	$56.95	$191.32
SSC	1.13		$123.71		$10.91	$55.88	$190.50	$118.51		$11.66	$56.95	$187.12
SSB	1.05		$114.95		$10.91	$55.88	$181.74	$110.12		$11.66	$56.95	$178.73
SSA	1.01		$110.57		$10.91	$55.88	$177.36	$105.93		$11.66	$56.95	$174.54
CC2	1.12		$122.62		$10.91	$55.88	$189.41	$117.46		$11.66	$56.95	$186.08
CC1	0.99		$108.38		$10.91	$55.88	$175.18	$103.83		$11.66	$56.95	$172.44
CB2	0.91		$99.62		$10.91	$55.88	$166.42	$95.44		$11.66	$56.95	$164.05
CB1	0.84		$91.96		$10.91	$55.88	$158.75	$88.10		$11.66	$56.95	$156.71
CA2	0.83		$90.87		$10.91	$55.88	$157.66	$87.05		$11.66	$56.95	$155.66
CA1	0.75		$82.11		$10.91	$55.88	$148.90	$78.66		$11.66	$56.95	$147.27
IB2	0.69		$75.54		$10.91	$55.88	$142.33	$72.37		$11.66	$56.95	$140.98
IB1	0.67		$73.35		$10.91	$55.88	$140.14	$70.27		$11.66	$56.95	$138.88
IA2	0.57		$62.40		$10.91	$55.88	$129.19	$59.78		$11.66	$56.95	$128.39
IA1	0.53		$58.02		$10.91	$55.88	$124.81	$55.59		$11.66	$56.95	$124.20

Table 10.1
Casemix Adjusted Payment Rates Under the RUG-III Classification System by Component: Urban and Rural Nursing Facilities

	Index values		URBAN					RURAL				
RUG-III code	Nursing Index	Therapy Index	Nursing Component	Therapy Component	Therapy-Non-case mix	Non-case mix	Tot Fed Rate	Nursing Component	Therapy Component	Therapy-Non- case mix	Non-case mix	Tot Fed Rate
BB2	0.68		$74.45		$10.91	$55.88	$141.24	$71.32		$11.66	$56.95	$139.93
BB1	0.65		$71.16		$10.91	$55.88	$137.95	$68.17		$11.66	$56.95	$136.78
BA2	0.56		$61.31		$10.91	$55.88	$128.10	$58.73		$11.66	$56.95	$127.34
BA1	0.48		$52.55		$10.91	$55.88	$119.34	$50.34		$11.66	$56.95	$118.95
PE2	0.79		$86.49		$10.91	$55.88	$153.28	$82.85		$11.66	$56.95	$151.47
PE1	0.77		$84.30		$10.91	$55.88	$151.09	$80.76		$11.66	$56.95	$149.37
PD2	0.72		$78.82		$10.91	$55.88	$145.62	$75.51		$11.66	$56.95	$144.12
PD1	0.70		$76.63		$10.91	$55.88	$143.43	$73.42		$11.66	$56.95	$142.03
PC2	0.65		$71.16		$10.91	$55.88	$137.95	$68.17		$11.66	$56.95	$136.78
PC1	0.64		$70.07		$10.91	$55.88	$136.86	$67.12		$11.66	$56.95	$135.73
PB2	0.51		$55.83		$10.91	$55.88	$122.62	$53.49		$11.66	$56.95	$122.10
PB1	0.50		$54.74		$10.91	$55.88	$121.53	$52.44		$11.66	$56.95	$121.05
PA2	0.49		$53.65		$10.91	$55.88	$120.44	$51.39		$11.66	$56.95	$120.00
PA1	0.46		$50.36		$10.91	$55.88	$117.15	$48.24		$11.66	$56.95	$116.85

Source: Federal Register, May 12, 1998

Table 10.2
CMS Payments for Nursing Care Under the RUG-III Classification System

	Index values		Urban		Rural	
RUG-III code	Nursing Index	Therapy Index	Nursing Cost	Tot Fed Rate	Nursing Cost	Tot Fed Rate
RUC	1.30	2.25	$59.11	$384.21	$55.71	$408.19
RUB	0.95	2.25	$43.20	$345.90	$40.72	$371.49
RUA	0.78	2.25	$35.47	$327.28	$33.43	$353.66
RVC	1.13	1.41	$51.38	$296.15	$48.43	$310.13
RVB	1.04	1.41	$47.29	$286.30	$44.57	$300.70
RVA	0.81	1.41	$36.83	$261.12	$34.71	$276.57
RHC	1.26	0.94	$57.29	$271.53	$54.00	$278.88
RHB	1.06	0.94	$48.20	$249.64	$45.43	$257.90
RHA	0.87	0.94	$39.56	$228.84	$37.28	$237.98
RMC	1.35	0.77	$61.39	$267.34	$57.86	$272.08
RMB	1.09	0.77	$49.56	$238.87	$46.72	$244.81
RMA	0.96	0.77	$43.65	$224.64	$41.14	$231.17
RLB	1.11	0.43	$50.47	$212.95	$47.57	$214.44
RLA	0.80	0.43	$36.38	$179.01	$34.28	$181.92
SE3	1.70		$77.30	$252.91	$72.86	$246.91
SE2	1.39		$63.20	$218.97	$59.57	$214.39
SE1	1.17		$53.20	$194.88	$50.14	$191.32
SSC	1.13		$51.38	$190.50	$48.43	$187.12
SSB	1.05		$47.74	$181.74	$45.00	$178.73
SSA	1.01		$45.92	$177.36	$43.29	$174.54
CC2	1.12		$50.93	$189.41	$48.00	$186.08
CC1	0.99		$45.01	$175.18	$42.43	$172.44
CB2	0.91		$41.38	$166.42	$39.00	$164.05
CB1	0.84		$38.19	$158.75	$36.00	$156.71
CA2	0.83		$37.74	$157.66	$35.57	$155.66
CA1	0.75		$34.10	$148.90	$32.14	$147.27
IB2	0.69		$31.37	$142.33	$29.57	$140.98
IB1	0.67		$30.47	$140.14	$28.72	$138.88
IA2	0.57		$25.92	$129.19	$24.43	$128.39
IA1	0.53		$24.10	$124.81	$22.72	$124.20
BB2	0.68		$30.92	$141.24	$29.14	$139.93
BB1	0.65		$29.56	$137.95	$27.86	$136.78
BA2	0.56		$25.46	$128.10	$24.00	$127.34
BA1	0.48		$21.83	$119.34	$20.57	$118.95
PE2	0.79		$35.92	$153.28	$33.86	$151.47
PE1	0.77		$35.01	$151.09	$33.00	$149.37
PD2	0.72		$32.74	$145.62	$30.86	$144.12
PD1	0.70		$31.83	$143.43	$30.00	$142.03
PC2	0.65		$29.56	$137.95	$27.86	$136.78
PC1	0.64		$29.10	$136.86	$27.43	$135.73
PB2	0.51		$23.19	$122.62	$21.86	$122.10
PB1	0.50		$22.74	$121.53	$21.43	$121.05
PA2	0.49		$22.28	$120.44	$21.00	$120.00
PA1	0.46		$20.92	$117.15	$19.71	$116.85

Sources: Calculated based on the May 12, 1998 and November 27, 1998 Federal Register, and staffing figures from 1998 OSCAR data.

STEP 2: Determine the number of Medicare covered days by RUG-III group. Medicare Part A SNF claims report the number of Medicare covered days by RUG-III group, even accounting for residents who were in two or more groups during the period covered by the claim. As a result, the claims data were used to measure the number of Medicare covered days by RUG-III group using Medicare Part A SNF claims with a 1999 date of service. It was not necessary to use the Minimum Data Set for this purpose.

We measured the number of Medicare covered days by RUG-III group using the universe of Medicare Part A SNF claims with a 1999 date of service (Table 10.3). The number of covered days in each RUG-III group can be identified based on the HCPCS code and the revenue unit fields in the claims. The HCPCS code indicates the resident's RUG-III group, and the revenue unit field indicates the number of days for which payment was made. Claims with a zero reimbursement amount were excluded, as it was difficult to justify including these claims in an analysis with the objective of calculating how much was paid for nursing care.[4] There was also one provider with four claims in an unknown RUG-III group (RM5) that were excluded from the analysis.

Payment rates and percentage of costs related to nursing care vary based on whether a facility is urban or rural. The claims data included 41,190,009 total resident days, but 54,898 of these days could not be classified as either urban or rural because the provider number on the SNF claim could not be linked to the Provider of Service (POS) file. Urban/rural status for these resident days was imputed based on the proportion of urban and rural days within the RUG-III group. For example, the RHC group had a total of 5,267,560 resident days, but we could not identify urban/rural status for 5,441 of these days. The urban and rural counts were inflated by an adjustment factor of 1.001034 to assign these days as either urban or rural, so that the sum of urban and rural days would equal total days. These adjusted counts were used for all of the analyses included in this report.

Of the 41.1 million Medicare covered resident days in 1999, nearly 75 percent of resident days (30.8 million) were for residents in one of the RUG-III rehabilitation groups, and 98 percent of resident days were for residents in the "upper RUG-III hierarchy" (i.e., the groups above clinically complex) (Table 10.3). The ultra-high rehabilitation group had the largest number of resident days (12.4 million).

[4] Most of the claims with a zero reimbursement amount were for the 'AAA' RUG-III group, a default code that is assigned to claims without an MDS assessment.

Table 10.3
Total Medicare Covered Days by RUG-III group, 1999

	Total Medicare covered resident days		
RUG-III code	**Urban**	**Rural**	**Total**
Total	32,046,912	9,143,097	41,190,009
RUC	385,793	145,146	530,939
RUB	1,803,175	376,710	2,179,885
RUA	512,794	123,288	636,082
RVC	722,808	272,557	995,365
RVB	3,984,510	881,565	4,866,075
RVA	1,474,269	379,333	1,853,602
RHC	4,069,202	1,198,358	5,267,560
RHB	4,174,689	1,110,738	5,285,427
RHA	1,451,180	416,262	1,867,442
RMC	1,580,754	571,026	2,151,780
RMB	2,781,818	863,089	3,644,907
RMA	919,738	304,919	1,224,657
RLB	84,727	39,953	124,680
RLA	129,543	45,744	175,287
SE3	1,103,300	336,633	1,439,933
SE2	1,373,934	472,481	1,846,415
SE1	70,553	29,864	100,417
SSC	517,548	195,522	713,070
SSB	864,784	178,128	1,042,912
SSA	1,158,067	325,161	1,483,228
CC2	55,781	29,732	85,513
CC1	210,032	89,118	299,150
CB2	199,203	59,869	259,072
CB1	776,334	185,757	962,091
CA2	221,579	70,174	291,753
CA1	818,816	245,502	1,064,318
IB2	21,562	5,981	27,543
IB1	72,209	20,914	93,123
IA2	5,647	2,145	7,792
IA1	44,089	13,534	57,623
BB2	1,360	358	1,718
BB1	5,373	1,754	7,127
BA2	716	263	979
BA1	8,838	2,535	11,373
PE2	14,916	5,468	20,384
PE1	56,261	23,722	79,983
PD2	47,560	12,539	60,099
PD1	152,096	45,425	197,521
PC2	5,961	2,184	8,145
PC1	24,253	7,969	32,222
PB2	7,682	2,893	10,575
PB1	39,074	14,431	53,505
PA2	7,682	2,241	9,923
PA1	86,702	32,112	118,814

Sources: Medicare SNF claims data, 1999

STEP 3: Apply appropriate wage adjustment factor. The labor-related portion of the payment rate is adjusted to account for differences in area wage levels using a wage index that was based on hospital wage data from cost reporting periods that began in fiscal year 1994 (Federal Register, May 12, 1998, page 26274). We created a facility-level file that contained the number of covered days in each RUG-III group. Facility location was identified based on the Metropolitan Statistical Area (MSA) code (for urban facilities) or state (for facilities without an MSA code) contained in the POS file.

A facility-level file was needed so that the appropriate wage adjustment factor could be applied to adjust our measure of nursing costs for the facility. Total expenditures for nursing care for each facility were determined based on the number of Medicare covered days by RUG-III group at the facility times the appropriate nursing cost measure (from Table 10.2) times the wage adjustment factor.

There were a small number of claims for which the provider number on the claim could not be matched to the POS file, preventing us from assigning a wage adjustment factor to the provider's payment. The adjustment factor for these providers was assumed to be equal to one.

STEP 4: Calculate total and per diem expenditures for nursing care based on RUG-III rates. Total Medicare expenditures for nursing care under the RUG-III system are equal to the sum of expenditures for each facility, based on Steps 1-3. In addition to calculating the total amount that CMS is paying for nursing care, we calculated the average amount per patient day, based on the distribution of residents by RUG-III group and facility. This permitted comparison of facility nursing costs under the minimum nurse staffing ratios that were suggested in Phase I of the report.[5]

STEP 5: Determine Medicare expenditures under a simplified rate setting methodology. We estimated how much Medicare would pay for nursing care under a simplified rate setting methodology under which the rate related to nursing care was determined based on nursing minutes by RUG-III group and the appropriate wage rate. Nursing minutes for each RUG-III group were determined from the 1995 and 1997 STM studies, using data available from CMS.

Step 5A: Determine nursing minutes for each RUG-III group. Resident and non-resident specific minutes per resident day for each case mix group were measured using the 1995 and 1997 STM studies, based on figures taken from the CMS web site (http://www.hcfa.gov/stats/stmds.htm) (Table 10.4).

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[5] The Phase I report suggested the following minimum staffing levels: Nurse aides: 2 hours per resident day; RNs and LPNs: 0.75 hours per resident day, of which 0.2 hours must be RNs. A higher 'preferred minimum' of 0.55 nurse aide hours was also associated with improved quality of care.

Table 10.4
Average Nursing Minutes by RUG-III Group and Type of Nurse — Figures from CMS Staff Time Measurement Study

	Resident and non-resident specific minutes per patient day		
RUG-III code	**RN**	**LPN**	**Nurse Aide**
RUC	112.7	53.8	180.1
RUB	87.7	37.4	123.8
RUA	64.5	40.4	98.4
RVC	90.9	50.7	164.9
RVB	94.7	41.6	136.3
RVA	75.6	30.0	106.8
RHC	110.6	53.5	167.0
RHB	102.3	39.9	129.9
RHA	89.7	27.6	102.6
RMC	111.2	66.8	180.0
RMB	101.2	42.4	141.8
RMA	95.0	33.9	117.3
RLB	79.0	48.9	191.3
RLA	64.5	32.0	122.8
SE3	140.7	101.5	191.3
SE2	110.4	85.4	163.2
SE1	77.9	60.1	195.3
SSC	72.9	64.3	184.1
SSB	70.9	55.0	172.4
SSA	91.7	41.7	130.4
CC2	85.2	42.5	191.1
CC1	55.7	57.7	176.9
CB2	61.5	41.8	159.0
CB1	59.0	36.2	147.3
CA2	58.8	43.3	130.3
CA1	59.7	37.6	103.3
IB2	40.0	32.0	137.2
IB1	39.0	32.0	130.0
IA2	38.0	27.0	100.0
IA1	33.0	26.0	96.0
BB2	40.0	30.0	136.0
BB1	38.0	28.0	130.0
BA2	38.0	30.0	90.0
BA1	34.0	25.0	73.5
PE2	37.0	32.0	184.8
PE1	37.0	29.4	181.6
PD2	36.0	25.0	170.0
PD1	36.0	27.6	160.0
PC2	25.6	32.8	154.4
PC1	45.1	20.6	124.2
PB2	28.0	36.8	80.6
PB1	27.5	27.7	93.9
PA2	31.9	30.6	72.9
PA1	28.2	29.8	72.8

Source: CMS, http://www.CMS.gov/stats/stmds.htm (Based on 1995 and 1997 Staff Time Measurement studies).

Step 5B: Use wage rate data to convert nursing minutes into expenditures. The two best sources of data on average wages for nurses were the Bureau of Labor Statistics (BLS) and wage rate data from Medicaid Cost Report data. According to the BLS, average wage rates in 1998 for those employed in nursing and personal care facilities were $19.94 for RNs, $14.40 for LPNs, and $8.57 for nurse aides (assuming 35 hours worked per week). Based on the Medicaid Cost Report data, after adjusting for the above-average wages in the five states for which we had nurse wage data, average wages in 1999 were $20.01 for RNs, $15.63 for LPNs, and $8.66 for nurse aides.

In addition to wage costs, it is important to consider the costs associated with fringe benefits. We considered two measurements of fringe benefit costs. According to the BLS, 24.3 percent of total compensation for nursing home employees consists of benefits (including paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits). Based on the Medicare Cost Report data used by CMS in setting PPS, fringe benefits represented about 15 percent of the total compensation for nursing home employees.

10.4 Results

There were more than 41 million Medicare covered resident days in 1999, nearly 75 percent of which (30.8 million) were for residents in a RUG-III rehabilitation group. The high rehabilitation group had the largest number of resident days (12.4 million). Under the PPS Federal rate, Medicare payments to nursing facilities were more than $10 billion (Table 10.5). The total nursing component (which includes both nursing care and ancillary costs) was nearly $4.8 billion ($116 per resident day). Total payment related to therapy services was just over $3 billion ($74 per resident day) and the total non-case mix component was nearly $2.3 billion ($55 per resident day).

We used the methods described above to measure the portion of the Federal rate related to the costs of nursing (i.e., RN, LPN, and nurse aide) care. In 1999, this was $2.56 billion or $62 per resident day (Table 10.6). Under the Federal rate, $115 million was related to social services ($2.80 per resident day) and $2.09 billion to ancillary costs ($51 per resident day).

Table 10.5
Reimbursement Under RUG-III Federal Payment Rates

	Reimbursement under RUG-III	
	Total	**Average per resident day**
Total Federal Rate	$10,093,781,828	$245.05
Nursing component	$4,771,950,333	$115.85
Therapy component	$3,044,092,390	$73.90
Non-case mix component	$2,277,739,105	$55.30

Based on 1999 resident days by RUG-III group and PPS payment rates published in the May 12, 1998 Federal Register. Figures adjusted by the wage adjustment factor for each facility.

Source: Abt Associates, 2001.

Table 10.6
Nursing Reimbursement Under RUG-III Federal Payment Rates

	Reimbursement under RUG-III	
	Total	Average per resident day
Total Nursing component	$4,771,950,333	$115.85
Related to nursing (RNs, LPNs, aides)	$2,562,530,575	$62.21
Related to social services	$115,139,827	$2.80
Related to ancillary costs	$2,094,279,931	$50.84

Based on 1999 resident days by RUG-III group and PPS payment rates published in the May 12, 1998 Federal Register. Figures adjusted by the wage adjustment factor for each facility.

Source: Abt Associates, 2001.

As part of understanding the potential cost implications of a minimum staffing requirement, we compared the costs of staffing at these minimum levels to payment related to nursing care under the PPS Federal rate. Based on wage and fringe benefit costs for nurses, the PPS Federal rate related to nursing care is close to our estimate of what it would cost facilities to staff at the minimum levels suggested by the short stay and long stay analyses (see chapter 2). In 1998 dollars, the short-stay minimum costs $54 per resident day, below the $62 average per resident day related to nursing care (Table 10.7). The higher staffing requirement suggested by the long-stay analyses would cost about $63 per resident day, slightly above current reimbursement levels, a potential implication of this finding is that the marginal costs to *Medicare* associated with a minimum staffing requirement are much lower than the costs to facilities of staffing at the higher level.

It was beyond the scope of this analysis to evaluate the adequacy of the other components of the PPS rate, but if these are set too low, facilities may be forced to use the nursing portion to cover non-nursing related costs. If this is the case, then additional Medicare funds may be required if a minimum staffing ratio is implemented. For this report, we were also not able to evaluate the adequacy of Medicaid rates for the minimum staffing levels.

Table 10.7
Costs of Staffing at Minimum Staffing Levels Identified in Short-Stay and Long-Stay Analyses

	Average per resident day
Current reimbursement under PPS	$62.21
Costs under minimum ratio identified in short-stay analyses	$54.16
Costs under preferred minimum identified in long-stay anlayses	$63.19

Based on 1999 resident days by RUG-III group and PPS payment rates published in the May 12, 1998 Federal Register. Figures adjusted by the wage adjustment factor for each facility. Costs of staffing at minimum staffing ratios are based on average wage rates of $20.01 for RNs, $15.63 for LPNs, and $8.66 for nurse aides, and that fringe benefits costs were 24.3 percent of total compensation.

Source: Abt Associates, 2001.

Our analysis suggested that the nursing component of the RUG-III payment rate was somewhat less than the level of nursing expenditures suggested by the simplified rate setting methodology. Based on this simplified methodology, the costs of providing nursing care to residents with Medicare covered stays was $3.52 billion in 1999, or about $85 per resident day, higher than the $62 average under the PPS Federal rate (Table 10.8).

Table 10.8
Nursing Costs Under Simplified Rate Setting Methodology

	Reimbursement under RUG-III	
	Total	**Average per resident day**
Total	$3,517,612,872	$85.40
Wages and salaries	$2,662,832,944	$64.65
Fringe benefit and payroll taxes	$854,779,928	$20.75

Based on 1999 resident days by RUG-III group and PPS payment rates published in the May 12, 1998 Federal Register. Figures adjusted by the wage adjustment factor for each facility.

Source: Abt Associates, 2001.

10.5 Conclusions

The costs to the government of a minimum staffing requirement depend on how the requirement is implemented and on how additional funds are linked to higher staffing levels. One way to measure the potential costs is to measure the additional payment to facilities that would be required in order for them to staff at the minimum level. This type of policy would not target additional funds to low-staffed facilities, but would ensure only that current payment levels were sufficient for facilities to staff at the required level.

Medicare expenditures under PPS related to nursing care were $2.56 billion in 1998, or $62 per resident day. This figure was somewhat less than what nursing expenditures would be if they were based on minutes from the CMS staff time measurement data. It is, however, close to what costs to facilities would be to staff at the minimum thresholds identified in chapter 2. In 1998 dollars, we estimate that it would cost facilities about $54 per day to staff at the thresholds identified by the short stay analyses and $63 per day to staff at the minimum levels identified by the long-stay analyses.

Description of the RUG-III Classification System

RUG-III is a 44-group model for classifying nursing home residents into homogenous groups according to common health characteristics and the amount and type of resources they use (see Table A-1 for a description of the 44 groups). Residents are classified based on residents' clinical conditions, extent of services used, and functional status. The groups are in seven general categories (in general order of costs associated with caring for residents): rehabilitation, extensive services, special care, clinically complex, impaired cognition, behavior problems, and reduced physical function.

The RUG-III system was developed as part of the multi-state Nursing Home Case Mix and Quality (NHCMQ) demonstration project. The classification system was designed using resident characteristics from the Minimum Data Set (MDS) and wage-weighted staff time. It was developed based on analysis of the 1990 and 1995 Staff Time Measurement studies conducted by CMS.

The first level of the RUG-III system is a hierarchy of major resident types, representing groups of residents with certain clinical conditions. These include rehabilitation, extensive services, special care, clinically complex, impaired cognition, behavior only, and reduced physical functioning (See Table A-1 for definitions of these categories). The rehabilitation category, which includes those with the most intensive need for services, is divided into five levels of intensity, based on the total minutes of therapy received per week, the days of therapy per week, and the number of different types of therapy received. Residents whose clinical conditions do not require skilled therapy are classified into lower categories, which descend in order of severity, the number of services used, and the amount of time and resources required to care for the resident. The seven major groups are further split based on the ADLs that the residents accomplish or other end splits (e.g., presence of nursing rehabilitation.)

Table A-1
The RUG-III classification system

Category	ADL index[A]	End splits	RUG-III group
1) Rehabilitation			
Ultra high rehabilitation (At least 720 minutes of therapy received per week with 5 or more days for one type of therapy and at least 3 days for a second type)	16-18	Not used	RUC
	9-15	Not used	RUB
	4-8	Not used	RUA
Very high rehabilitation (At least 500 minutes of therapy received per week with 5 or more days for one type of therapy)	16-18	Not used	RVC
	9-15	Not used	RVB
	4-8	Not used	RVA
High rehabilitation (At least 325 minutes of therapy received per week with 5 or more days per week for one type of therapy)	13-18	Not used	RHC
	8-12	Not used	RHB
	4-7	Not used	RHA
Medium rehabilitation (At least 150 minutes of therapy received per week with 5 or more days of some type of therapy)	15-18	Not used	RMC
	8-14	Not used	RMB
	4-7	Not used	RMA
Low rehabilitation (At least 45 minutes of therapy received per week with 3 or more days of some type of therapy and 2 or more nursing rehabilitation activities at least 6 days per week each.	14-18	Not used	RLB
	4-13	Not used	RLA
Extensive services (Resident qualifies for extensive services on the basis of clinical indicators. Qualifications include receipt of parenteral/IV feeding, IV medication, the special care category, the clinically complex category, and the impaired cognitition category. ADL index score must be 7 or higher– otherwise classify resident into special care)	7-18	Count of other categories code into plus IV medications + feeding	SE3
	7-18		SE2
	7-18		SE1

Table A-1
The RUG-III classification system

Category	ADL index[A]	End splits	RUG-III group
2.) Special care (Resident qualifies for extensive services on the basis of clinical indicators. Qualifications include an ADL score of 7 or more plus any of the following: • Two or more ulcers of any type or a stage 3 or 4 pressure ulcer and two or more selected skin care treatments; • Feeding tube with parenteral/enteral intake and aphasia; • Surgical wounds or open lesions other than ulcers, rashes, or cuts and surgical wound care or application of dressings or ointments; • Respiratory therapy for 7 days; • Cerebral palsy and an ADL score of 10 or more; • Fever and vomiting or weight loss or tube feeding with high; parenteral/enteral intake, pneumonia, or dehydration; • Multiple sclerosis and an ADL score of 10 or more; • Quadriplegia and an ADL score of 10 or more; and • Radiation therapy	17-18 15-16 7-14	Not used Not used Not used	SSC SSB SSA
3.) Clinically complex (Resident qualifies for extensive services on the basis of clinical indicators. Qualifications include any of the following: feeding tube with high parenteral/enteral intake; comatose and not awake and ADL dependent; septicemia; second or third degree burns; dehydration; hemiplegia/hemiparesis and an ADL score of ten or more; internal bleeding; pneumonia; end stage disease; chemotherapy; dialysis; physician order changes on 4 or more days and physicians visits on 1 or more day; physician order changes on 2 or more days and physician visits on 7 days; diabetes and injections on 7 days and physician order changes on 2 or more days; transfusions; oxygen therapy; application of dressing to foot and injection on foot or open lesion on foot)	17-18D 17-18 12-16D 12-16 4-11D 4-11	Signs of depression	CC2 CC1 CB2 CB1 CA2 CA1

Table A-1
The RUG-III classification system

Category	ADL index[A]	End splits	RUG-III group
4.) Impaired cognition (Resident must have an ADL index of ten or less and a Cognitive Performance Scale of 3 or more, indicating moderate, moderately severe, severe, or very severe impairment)	6-10	Receiving nursing rehabilitation	IB2
	6-10		IB1
	4-5	Not receiving	IA2
	4-5	Receiving nursing rehabilitation	IA1
		Not receiving	
5.) Behavior problems only (Resident must have an ADL index of 10 or less and the presence of delusions, hallucinations, or one of more of the following 4 or more days per week: wandering, verbally abusive behavior, physically abusive behavior, socially inappropriate/disruptive behavior, resisting care.	6-10	Receiving nursing rehabilitation	BB
	6-10		BB1
	4-5	Not receiving	BA2
	4-5	Receiving nursing rehabilitation	BA1
		Not receiving	
6.) Physical functioning reduced (Split into physical functioning groups is based on the ADL index and whether the number of nursing rehab activities is 2 or more)	16-18	Receiving nursing rehabilitation	PE2
	16-18		PE1
	11-15	Not receiving	PD2
	11-15	Receiving nursing rehabilitation	PD1
	9-10		PC2
	9-10	Not receiving	PC1
	6-8	Receiving nursing rehabilitation	PB2
	6-8		PB1
	4-5	Not receiving	PA2
	4-5	Receiving nursing rehabilitation	PA1
		Not receiving	
		Receiving nursing rehabilitation	
		Not receiving	

A: The ADL index is based on the amount of support required for the following ADL activities: bed mobility, transferring, toilet use, and eating. It ranges from 4 (fully independent) to 18 (totally dependent, needs two-person assistance where applicable).